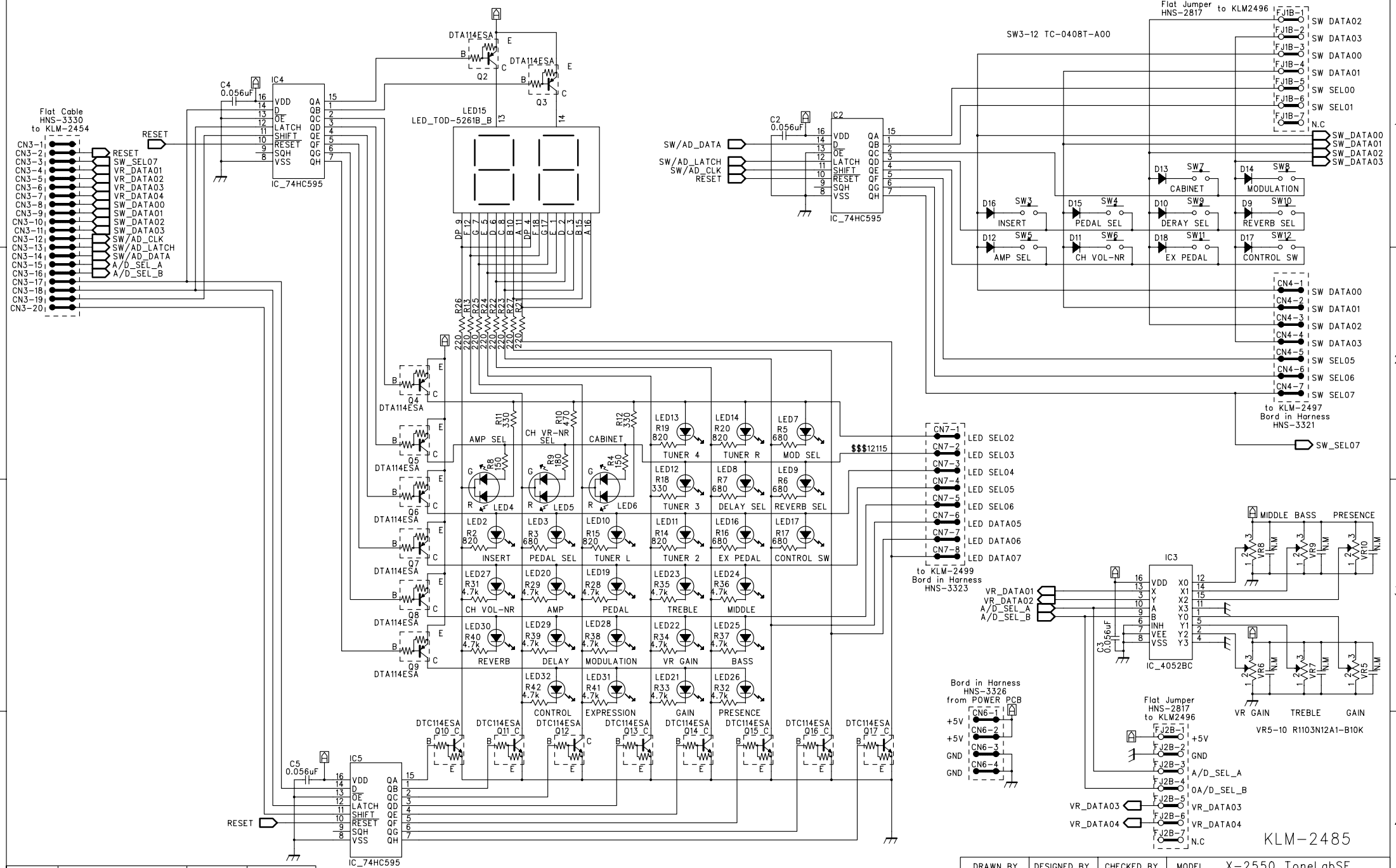
Service Manual

ToneLab SE

CONTENTS

Circuit Diagram: Page 1-6
Block Diagram: Page 7
Cable: Page 8-9
External Diagram: 10
Test Mode: Page 11
Parts List: Page:12-15

2nd Edition
Issued date: May 27th, 2004
Issued by: KORG INC.



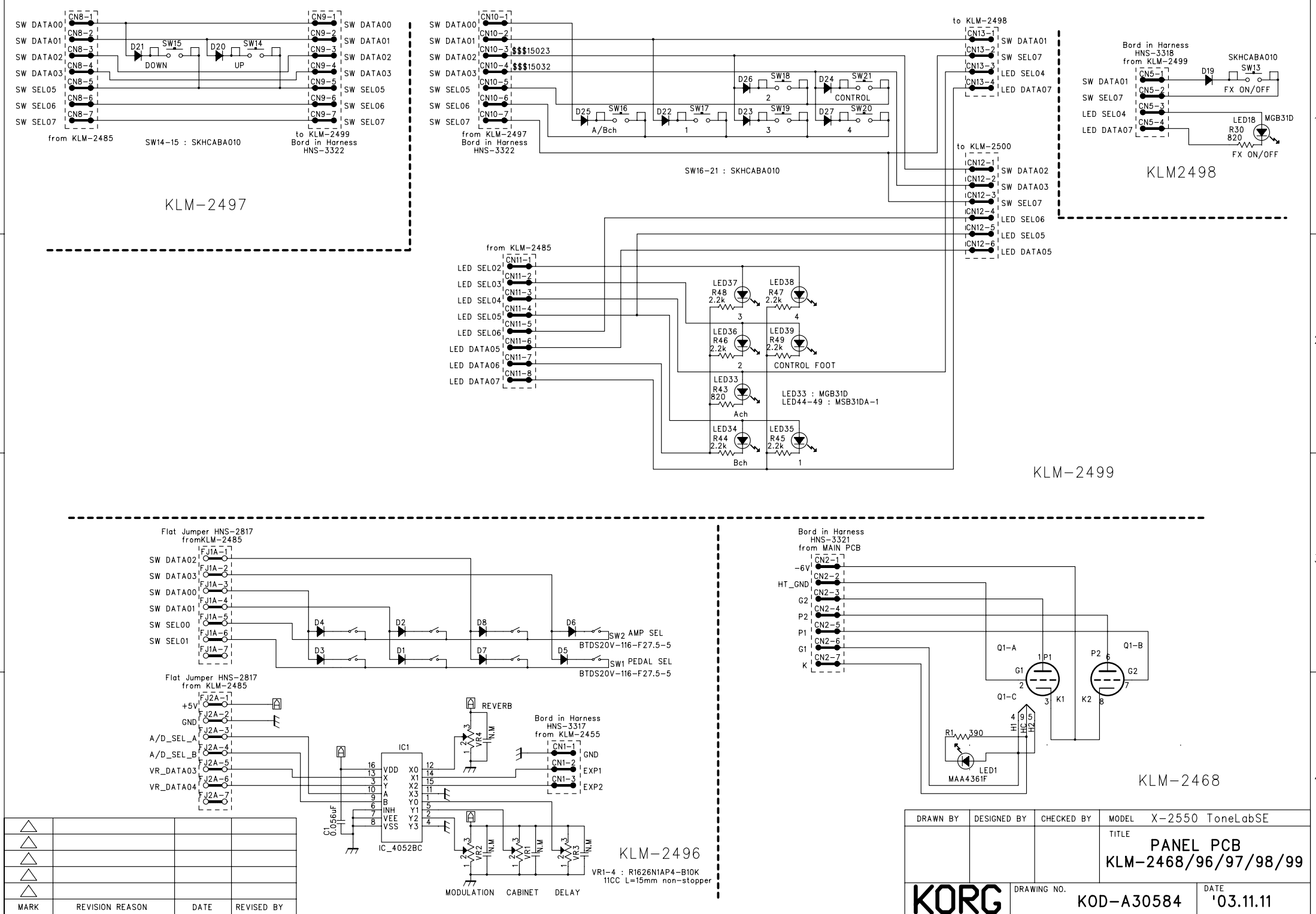
MARK	REVISION REASON	DATE	REVISED BY
△			
△			
△			
△			
△			

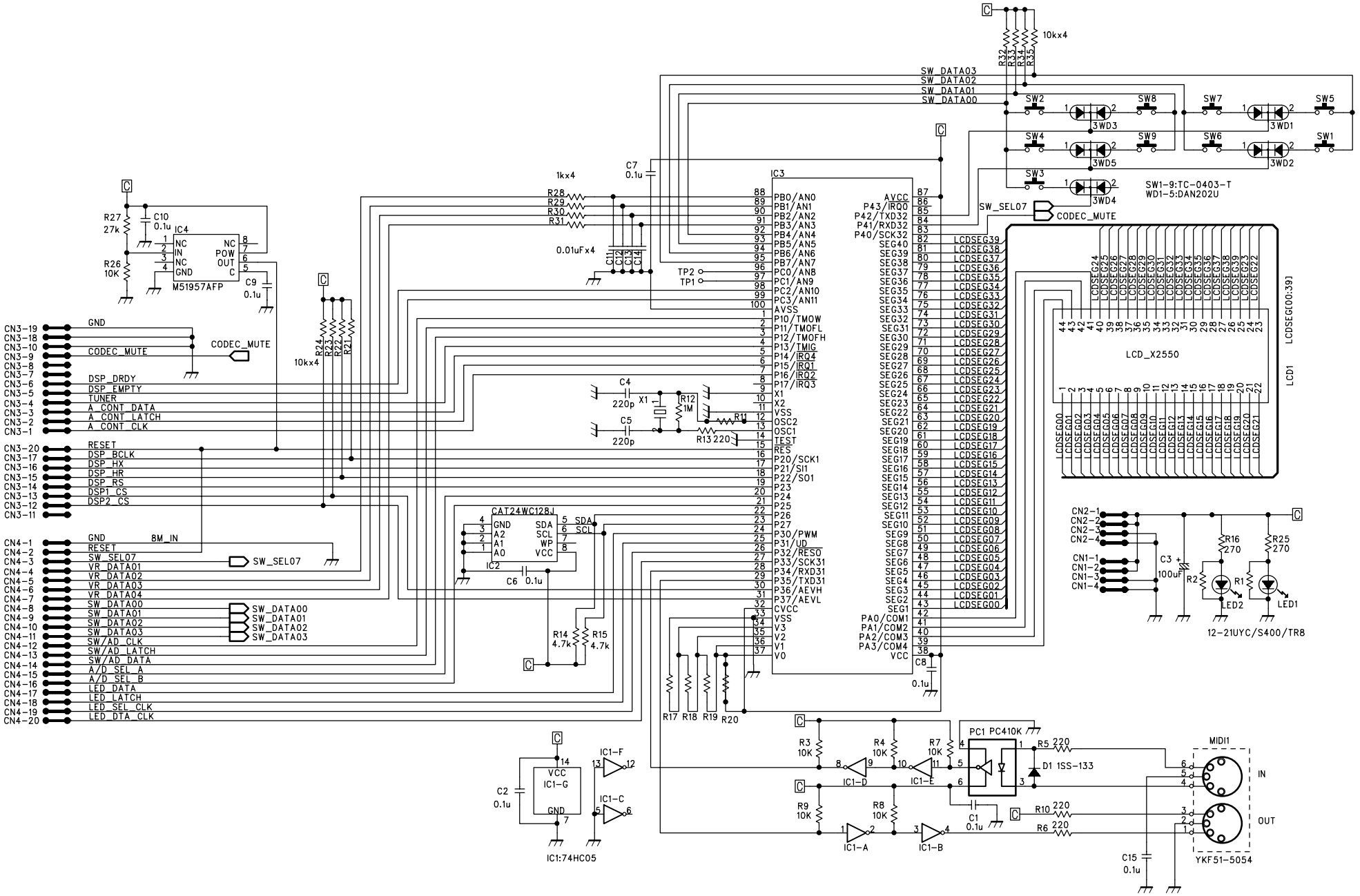
DRAWN BY	DESIGNED BY	CHECKED BY	MODEL X-2550 ToneLabSE
			TITLE PANEL PCB KLM-2485

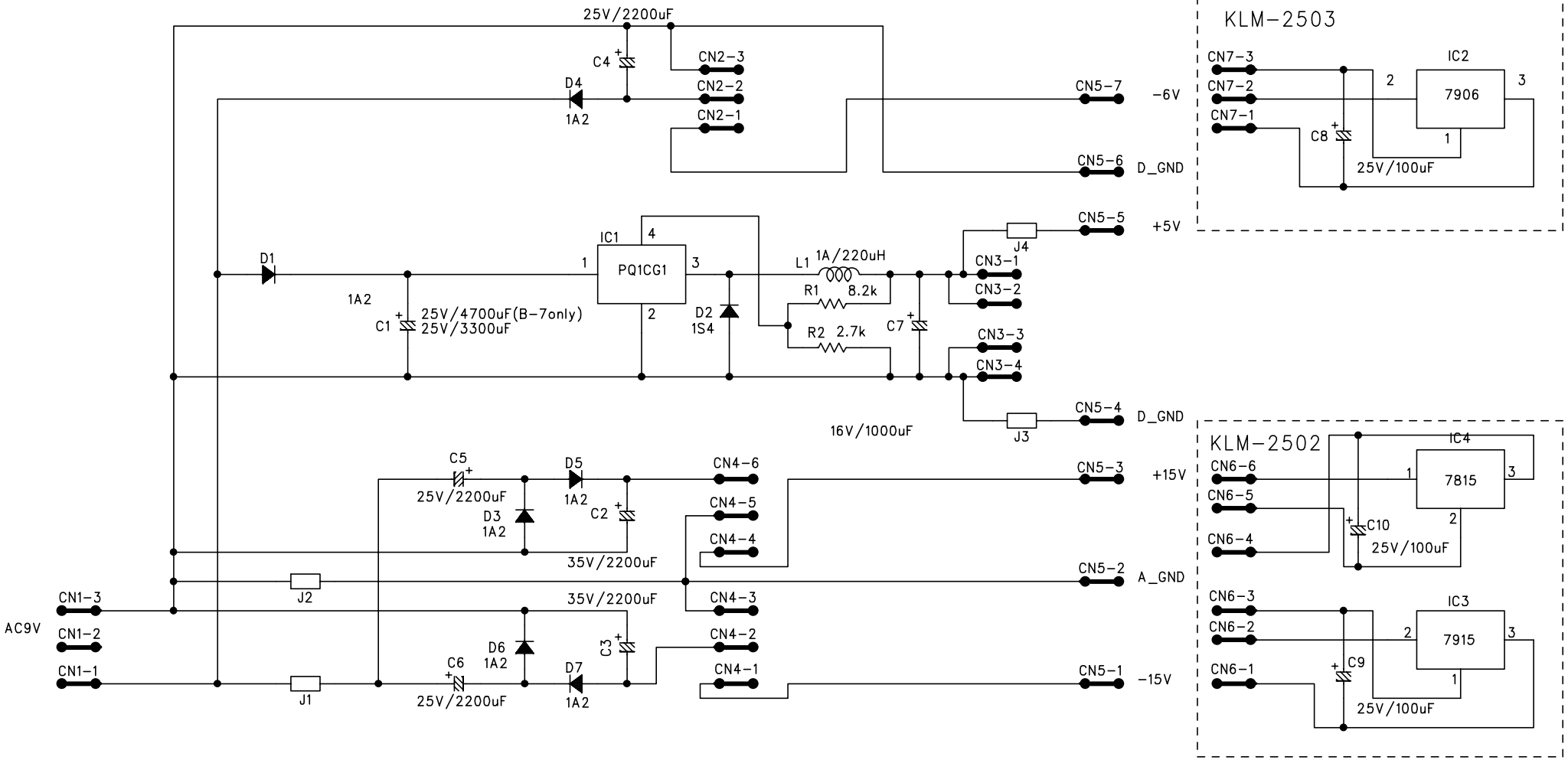
KORG

DRAWING NO. KOD-A30583

DATE '03.11.11

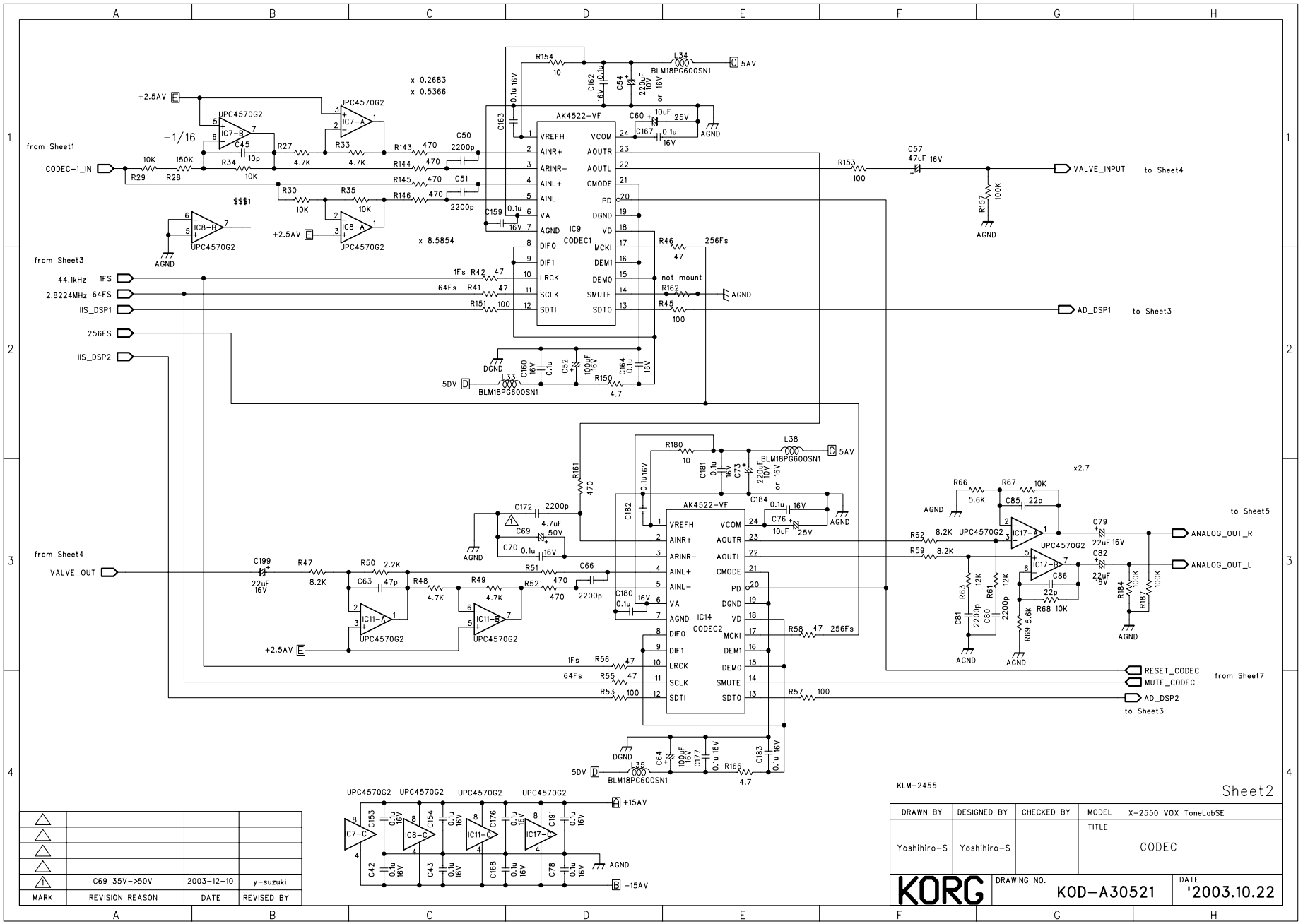

KLM-2497
KLM-2498
KLM-2499
KLM-2468
KLM-2496
SW14-15 : SKHCABA010
SW16-21 : SKHCABA010
LED33 : MGB31D
LED44-49 : MSB31DA-1
VR1-4 : R1626N1AP4-B10K
11CC L=15mm non-stopper
IC_4052BC
DRAWN BY
DESIGNED BY
CHECKED BY
MODEL X-2550 ToneLabSE
TITLE
PANEL PCB
KLM-2468/96/97/98/99
KORG
DRAWING NO.
KOD-A30584
DATE
'03.11.11
MARK
REVISION REASON
DATE
REVISED BY

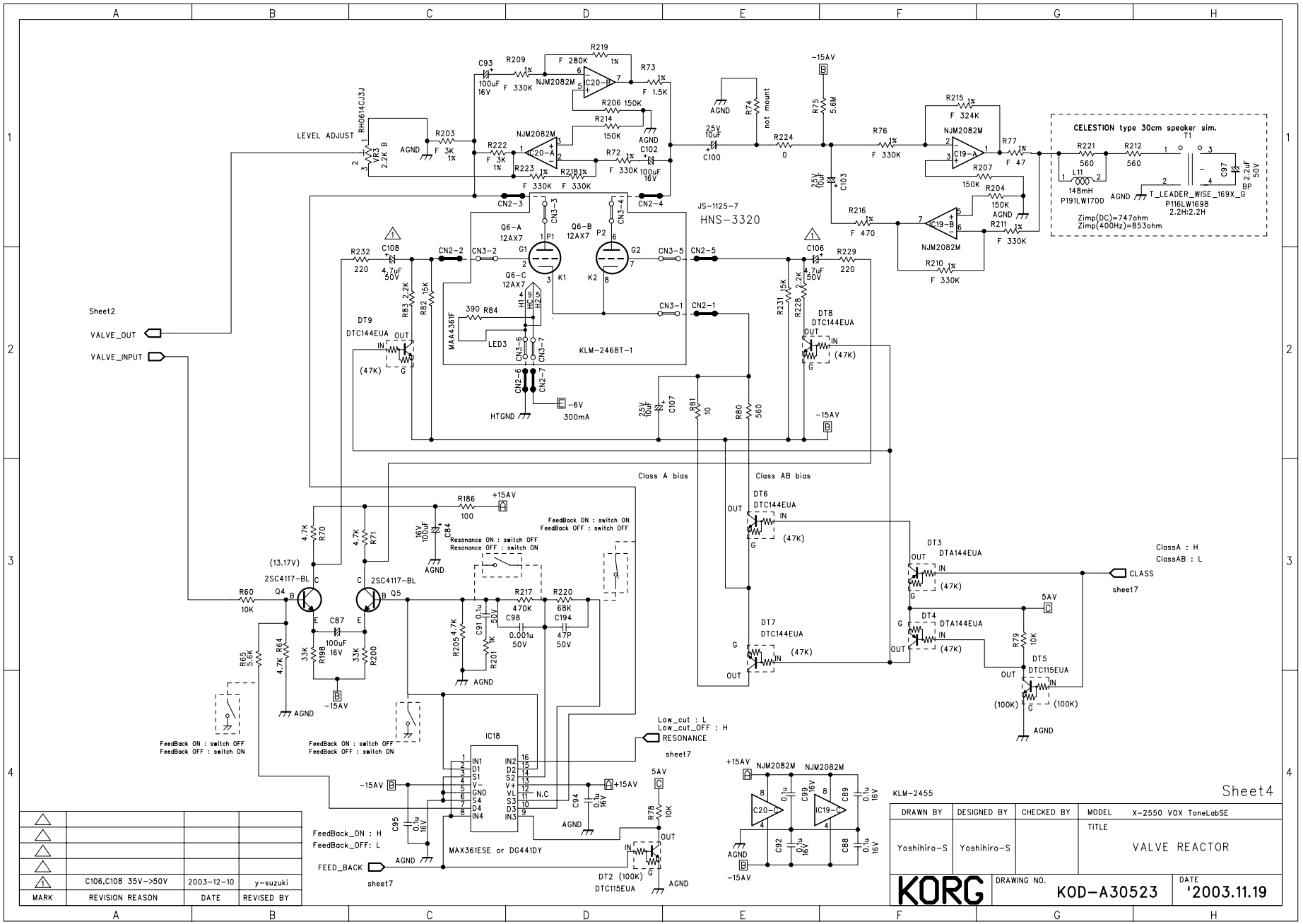

IC3
IC4
M51957AFP
IC2
CAT24WC128J
IC1:74HC05
LCD_X2550
LCD1
SW1-9:TC-0403-T
WD1-5:DAN202U
CODEC_MUTE
SW_SEL07
MIDI1
YKF51-5054
12-21UYC/S400/TR8
KORG
MODEL X-2550 ToneLabSE
TITLE
MAIN PCB
KLM-2454
DRAWING NO.
KOD-A40556
DATE
'03.11.11
DRAWN BY
DESIGNED BY
CHECKED BY
MARK
REVISION REASON
DATE
REVISED BY

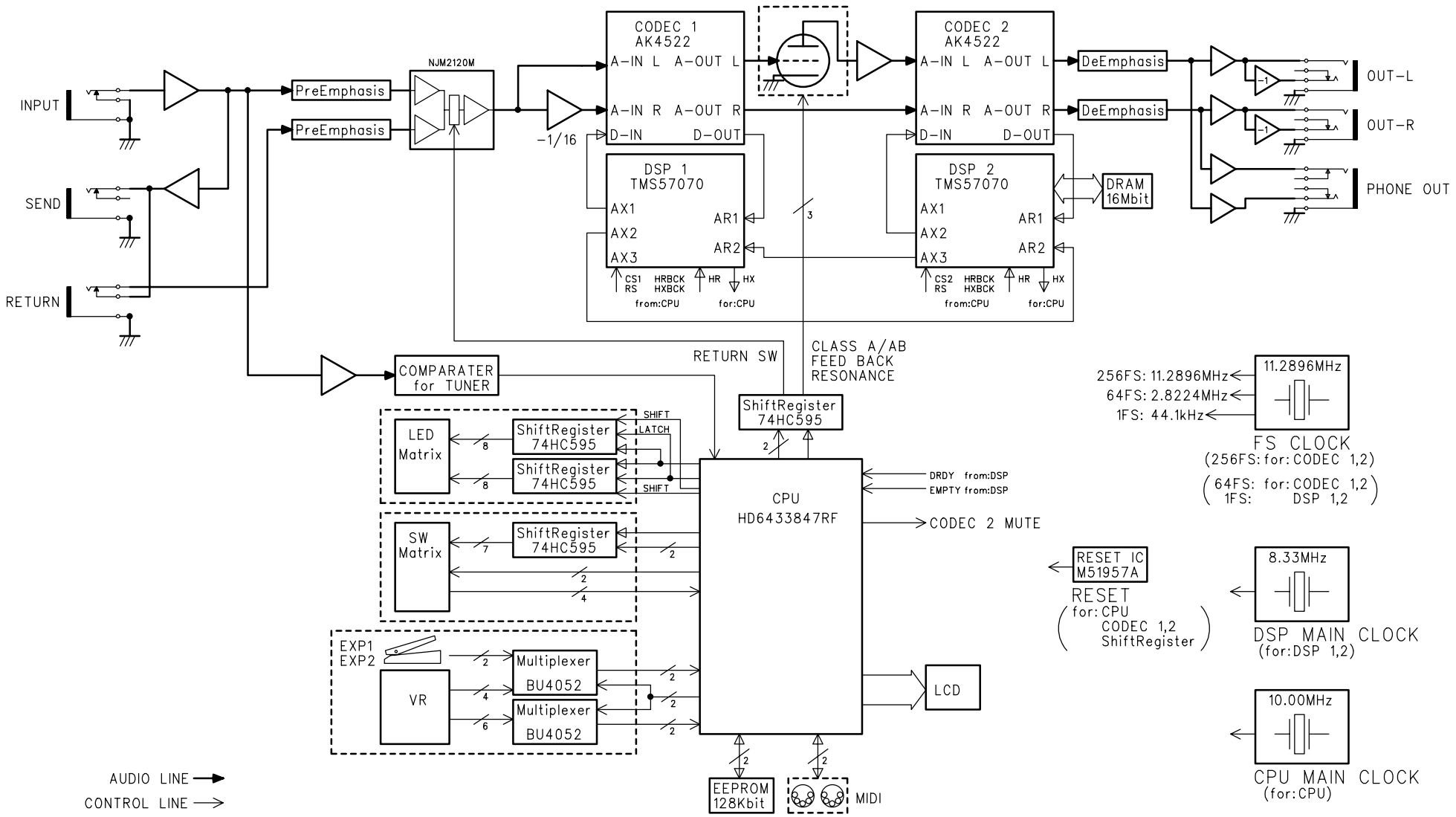


MARK	REVISION REASON	DATE	REVISED BY
△			
△			
△			
△			
△			

DRAWN BY	DESIGNED BY	CHECKED BY	MODEL X-2550 ToneLabSE
			TITLE POWER PCB KLM-2501/02/03
KORG	DRAWING NO. KOD-A40557		DATE '03.11.11


AK4522-VF
IC9 CODEC1
IC14 CODEC2
UPC4570G2
BLM18PG600SN1
from Sheet1
from Sheet3
from Sheet4
from Sheet7
to Sheet3
to Sheet4
to Sheet5
CODEC-1_IN
VALVE_INPUT
VALVE_OUT
AD_DSP1
AD_DSP2
ANALOG_OUT_R
ANALOG_OUT_L
RESET_CODEC
MUTE_CODEC
44.1kHz 1FS
2.8224MHz 64FS
IIS_DSP1
256FS
IIS_DSP2
+2.5AV
5AV
5DV
+15AV
-15AV
AGND
DGND
-1/16
x 0.2683
x 0.5366
x 8.5854
x2.7
Sheet2
KLM-2455
KORG
KOD-A30521
'2003.10.22
X-2550 VOX ToneLabSE
CODEC
Yoshihiro-S
Yoshihiro-S
C69 35V->50V
2003-12-10
y-suzuki


HNS-3320
JS-1125-7
KLM-2468T-1
Sheet2
VALVE_OUT
VALVE_INPUT
LEVEL ADJUST
Class A bias
Class AB bias
ClassA : H
ClassAB : L
CLASS
sheet7
RESONANCE
Low_cut : L
Low_cut_OFF : H
FeedBack ON : switch ON
FeedBack OFF : switch OFF
Resonance ON : switch OFF
Resonance OFF : switch ON
FeedBack_ON : H
FeedBack_OFF: L
FEED_BACK
MAX361ESE or DG441DY
CELESTION type 30cm speaker sim.
T_LEADER_WISE_169X_G
Zimp(DC)=747ohm
Zimp(400Hz)=853ohm
KLM-2455
Sheet4
VALVE REACTOR
KOD-A30523
'2003.11.19
Yoshihiro-S
X-2550 VOX ToneLabSE
C106,C108 35V->50V
2003-12-10
y-suzuki

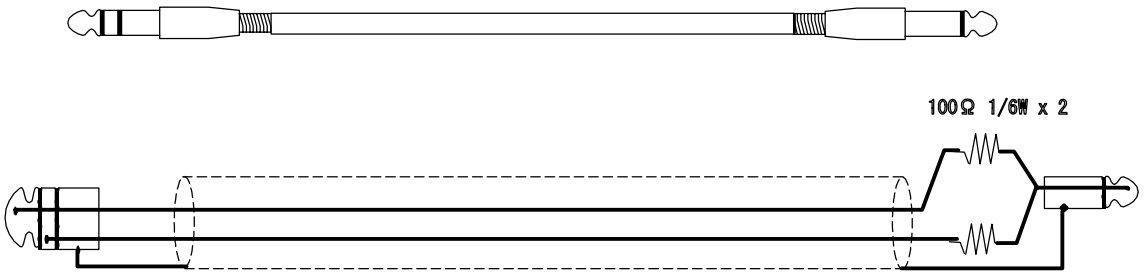


MARK	REVISION REASON	DATE	REVISED BY
△			
△			
△			
△			
△			

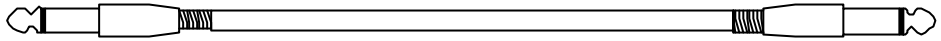
DRAWN BY	DESIGNED BY	CHECKED BY	MODEL Tone Lab SE(X-2550)
Ichikawa	Ichikawa		TITLE SYSTEM BLOCK DIAGRAM

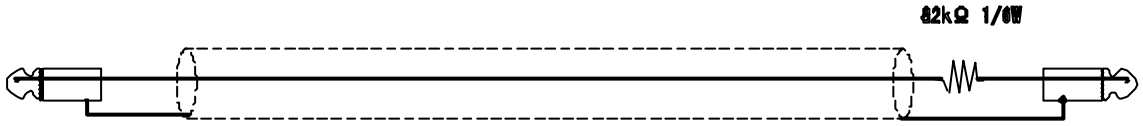
KORG | DRAWING NO. KOD-B40260 | DATE '03.09.16

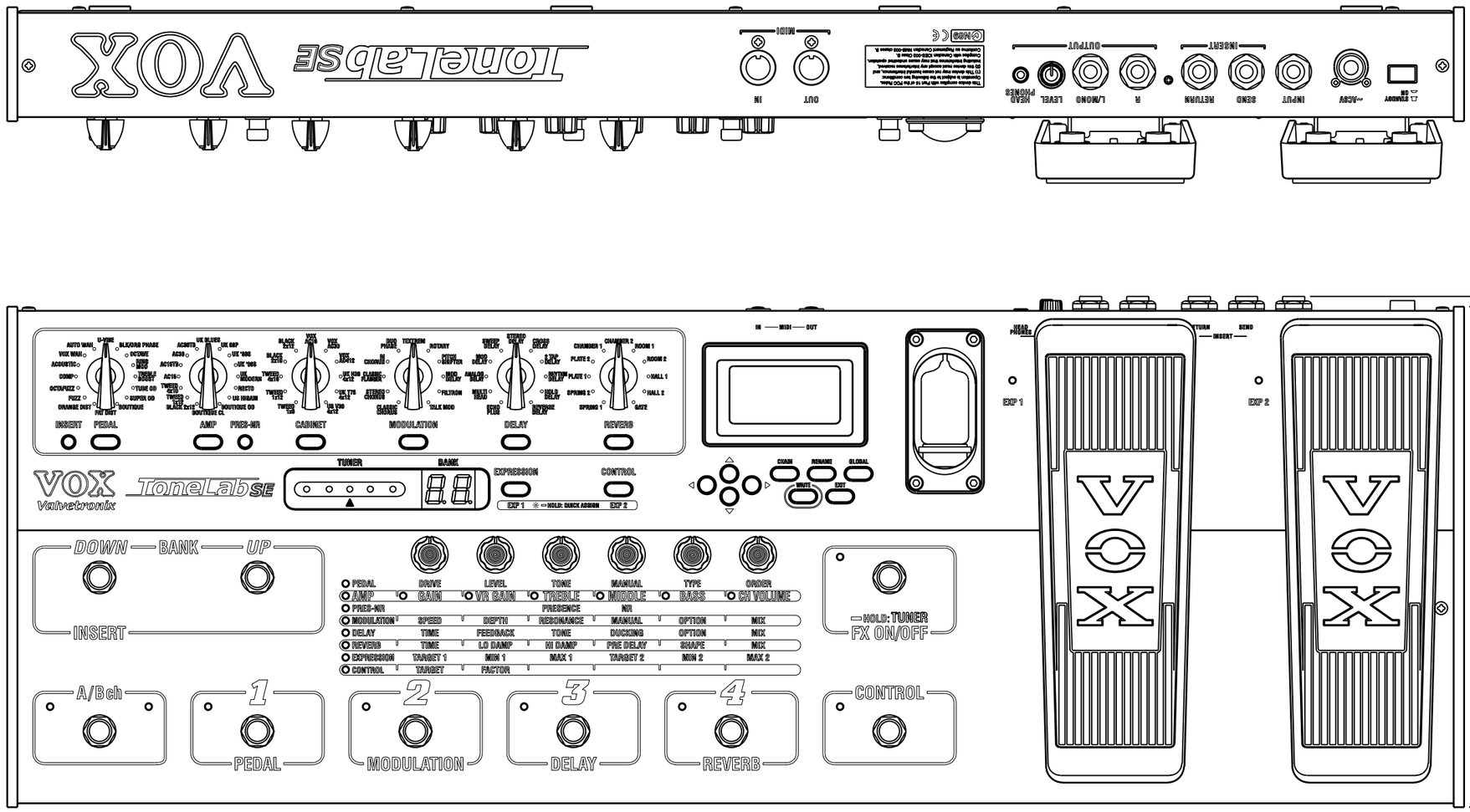
CAB032－　　(MINI STEREO(Φ3.5) - MONO(Φ6.3))



CABC33 (MONO - MONO)







W=710mm
D=249mm
H=76~111mm
Weight=6.2kg

REVISAL MARK	REVISAL REASON	REVISAL DATE	REVISED BY	APPROVED

COMMERCIAL TOLERANCE± mm

1	X-2550					
MODEL		SPECIFICATION		PARTS NAME		PARTS No.
WEIGHT: 5.6(kg)	DRAWN	CHECKED	APPROVED	TITLE External Appearance		試作図
	SAKANE 03/09/12	SUGIHARA 03/09/19	ADACHI 03/09/1	外形図		金型手配図
						金型発注図
KORG KORG INC.			SCALE Free	DRAWING No. KOC-A30169		量産図面
						総合製作書用図面 ○

A3

ToneLabSE test mode:

How to start and operate the test mode:

[<] + [CHAIN] & [POWER ON]: Internal test & Operation knob&sw test
[▼] + [CHAIN] & [POWER ON]: MIDI test & Audio test
[<] + [RENAME] & [POWER ON]: Internal test (Terminal connection test skip), Operation knob&sw test
[<] + [GLOBAL] & [POWER ON]: Operation knob&sw test
[▲] + [RENAME] & [POWER ON]: Valve test alone
[▼] + [RENAME] & [POWER ON]: Audio test

[▲]: Item up
[▼]: Item down
[GLOBAL]: Step up
[<]: Return to the top of the item
[WRITE]: Re-examination of the NG step
[INSERT] + [WRITE]: Re-examination of the NG step at the Internal test
[INSERT] + [<]: Re-examination of the NG items at the Internal test

NOTE:

Internal test:
1) Connect IN and OUT with a MIDI cable for the MIDI test.
2) Connect HEADPHONES and INPUT with a cable CAB032.
3) Connect RETURN and SEND with a cable CAB033.

External test:
Connect RETURN and SEND with a cable which has no resistor.

PART CODE	PART NAME	NOTE	Q'TY
001245400	PCB ASSY KLM-2454 TONELAB-SE	M.PART	1
001245500	PCB ASSY KLM-2455/2500 SE	M.PART	1
001248500	PCB ASSY KLM-2485/68/96-9 SE	M.PART	1
001250100	PCB ASSY KLM-2501 TONELAB-SE	M.PART	1
304000070	TR 2SA812-T1B (M5-7) (TS)	KLM-2455/2500	1
304020330	TR 2SC4116-GR TE85L (TS)	KLM-2455/2500	1
304020340	TR 2SC4213-A TE85L (TS)	KLM-2455/2500	4
304050220	DIGITAL TR DTC114ESA TP(TR)	KLM-2485/68/96/7/8/9	8
304050240	DIGITAL TR DTA114ESA TP	KLM-2485/68/96/7/8/9	8
314001400	DIODE RLS-73 TE-11 (TS)	KLM-2454	1
314030700	DIODE RB051L-40TE25 (TS)	KLM-2455/2500	2
320004694	IC HD643384RB64H (X-2550)	KLM-2454	1
320009058	IC NJM-7815FA	KLM-2501	1
320009059	IC NJM-7915FA	KLM-2501	1
320013073	IC PQ1CG1	KLM-2501	1
320021156	IC TMS57070FFT	KLM-2455/2500	2
324001015	IC UPC4570G2-E2 (TS)	KLM-2455/2500	5
324003042	IC TC7W04F (TE12L) (TS)	KLM-2455/2500	2
324004146	IC HD74HC595FPEL (TS)	KLM-2455/2500	1
324004165	IC HD74HC4040FPEL (TS)	KLM-2455/2500	1
324004176	IC HD74HC05FPER (TS)	KLM-2454	1
324006007	IC MSM5118165F-60JS7R1 (TS)	KLM-2455/2500	1
324007002	IC BA10358F-T1(2K) (TS)	KLM-2455/2500	1
324009004	IC NJM78L05UA-TE2 (TS)	KLM-2455/2500	1
324009010	IC NJM2082M-TE3 (TS)	KLM-2455/2500	2
324009019	IC NJM2115M-TE2 (TS)	KLM-2455/2500	1
324009039	IC NJM4580M-TE1 (TS)	KLM-2455/2500	2
324011032	IC M51957AFP	KLM-2454	1
324018006	IC AK4522-VF-E2(TS)	KLM-2455/2500	2
324043002	IC CAT24WC128JTE13(TS)	KLM-2454	1
334000600	PHOTO COUPLER PC-410K (TS)	KLM-2454	1
350011222	SFR RH0614CJ3J 2.2K	KLM-2455/2500	1
375014800	PSW SDKLA10200	KLM-2455/2500	1
405013900	AC/AC ADAPTOR KA-161EV	M.PART 100JP	1
405014000	AC/AC ADAPTOR KA-163EV	M.PART 117CN	1
405014000	AC/AC ADAPTOR KA-163EV	M.PART 117US	1
405014000	AC/AC ADAPTOR KA-163EV	M.PART 117EX	1
405014100	AC/AC ADAPTOR KA-169EV	M.PART 230UK	1
405014100	AC/AC ADAPTOR KA-169EV	M.PART 230WG	1
405014100	AC/AC ADAPTOR KA-169EV	M.PART 230FR	1
405014100	AC/AC ADAPTOR KA-169EV	M.PART 230GE	1
405014200	AC/AC ADAPTOR KA-165EV	M.PART 240AU	1
450003000	MINI PHONE JACK LGY6502-0600	KLM-2455/2500	1
450003900	PHONE JACK LJB0661-6	KLM-2455/2500	5
454012707	DIN SOCKET DJ-004-C	KLM-2455/2500	1
471060301	CONNECTOR TOP B3B-EH-A (U)	KLM-2455/2500	1
471060700	CONNECTOR TOP B7B-EH-A	KLM-2455/2500	1
515400100	FUSE HOLDER CNT47-0003A(TR)	KLM-2455/2500	1
575020000	LED SPACER LH-5-6 L=6MM	KLM-2485/68/96/7/8/9	26
620018200	PSW KNOB KOC-E40224	M.PART	1
620040700	KNOB P423-90F(X-9100) E40519-1	M.PART	1

PART CODE	PART NAME	NOTE	Q'TY
646077600	X-0400 BL PLATE KOC-E40525	M.PART	1
*12AX7EH	TUBE 12AX7EH	M.PART	1
*304X040003	DIGITAL TR DTC144EUA	KLM-2455/2500	4
*304X255000	DIGITAL TR DTC115EUA	KLM-2455/2500	2
*304X255001	DIGITAL TR DTA144EUA	KLM-2455/2500	2
*304X255002	TR 2SC4117-BL	KLM-2455/2500	2
*310X270000	LED TOD-5261BH-D	KLM-2485/68/96/7/8/9	1
*312X863G01	LED 12-21UYC	KLM-2454	2
*313X255000	LCD DLC-90106G4GT	M.PART	1
*314X255000	DOUBLE DIODE DAN202U	KLM-2454	5
*314X255000	DOUBLE DIODE DAN202U	KLM-2455/2500	1
*314X255001	DIODE 1SS-355	KLM-2455/2500	3
*314X255002	DIODE 1SR-154-400	KLM-2455/2500	1
*314X255003	SCHOTTKY DIODE 1SS-357	KLM-2455/2500	2
*314X65900	DIODE 1SS133	KLM-2485/68/96/7/8/9	27
*315X111008	LED MGB31D (GREEN)	KLM-2485/68/96/7/8/9	3
*315X150003	LED MSB31DA-1	KLM-2485/68/96/7/8/9	31
*315X150003	LED MSB31DA-1	KLM-2455/2500	2
*315X254000	LED MAA4361F (ORANGE)	KLM-2485/68/96/7/8/9	1
*315X254001	DOUBLE DIODE DA204U	KLM-2455/2500	3
*315X254004	DIODE 1S4	KLM-2501	1
*315X254005	DIODE 1A2	KLM-2501	6
*315X256000	LED MOGB39W	KLM-2485/68/96/7/8/9	3
*320X254000	IC NJM4556AD	KLM-2455/2500	1
*320X254002	IC NJM-7906FA	KLM-2501	1
*320X255000	IC SN74HC595N	KLM-2485/68/96/7/8/9	3
*320X851000	IC BU4052BC	KLM-2485/68/96/7/8/9	2
*324X255000	IC NJM2120M	KLM-2455/2500	1
*324X255001	IC DG441DY	KLM-2455/2500	1
*334X255000	X'TAL HC-49/S 8.33MHZ	KLM-2455/2500	1
*334X255001	X'TAL HC-49/S 11.2896MHZ	KLM-2455/2500	1
*335X111001	X'TAL HC-49US 10.000MHZ	KLM-2454	1
*335X270000	PHOTO REFLECTOR RPR-359F	KLM-2455/2500	2
*350X255000	TRIMER RH0614CN4J 33K	KLM-2455/2500	2
*362X255000	VR RK09L12B0A4S 10KAX2 L=15MM	KLM-2455/2500	1
*362X255001	VR R1103N12A1-B10K	KLM-2485/68/96/7/8/9	6
*362X951G02	VR R1626N1AP4 10KB-11CC	KLM-2485/68/96/7/8/9	4
*374X260000	TACT SW SKHCABA010	KLM-2485/68/96/7/8/9	9
*375X254001	BINARY SW BTDS20V-116-F27.5-5	KLM-2485/68/96/7/8/9	2
*375X255000	TSW TC-0102T-A00	KLM-2455/2500	2
*375X255001	TSW TC-0408T-A00	KLM-2485/68/96/7/8/9	10
*400X254000	CUSTOM TRANSFORMER P116LW1698	KLM-2455/2500	1
*402X254000	CUSTOM COIL P191LW1700 148MH	KLM-2455/2500	1
*402X254005	INDUCTOR TC-221M-1	KLM-2501	1
*402X255000	CHIP BEAD BLM18PG600SN1	KLM-2455/2500	25
*402X255001	CHIP BEAD BLM18AG102SN1	KLM-2455/2500	9
*450X255000	DIN JACK YKF51-5054	KLM-2454	1
*454X255000	X-2550 20PIN SOCKET	KLM-2454	2
*464X254000	FUSE 250V/T2.5A	KLM-2455/2500	1
*471X120000	WAFER JS-1125-3	KLM-2455/2500	1
*471X120007	WAFER JS-1125-7	KLM-2455/2500	1

PART CODE	PART NAME	NOTE	Q'TY
*471X254006	WAFER JS-1132-03	KLM-2501	1
*471X255004	WAFER JS-1132-04	KLM-2454	2
*471X255004	WAFER JS-1132-04	KLM-2501	1
*471X255007	WAFER JS-1132-07	KLM-2501	1
*472X255004	WAFER SIDE JS-1125R-04	KLM-2485/68/96/7/8/9	1
*472X255006	WAFER SIDE JS-1125R-06	KLM-2485/68/96/7/8/9	1
*472X255007	WAFER SIDE JS-1125R-07	KLM-2485/68/96/7/8/9	1
*472X255008	WAFER SIDE JS-1125R-08	KLM-2485/68/96/7/8/9	1
*474X254000	TUBE SOCKET G2C9-Y 9P	KLM-2485/68/96/7/8/9	1
*475X255000	HARNESS HNS-3319	KLM-2455/2500	1
*475X255001	HARNESS HNS-3331	KLM-2455/2500	1
*475X255002	HARNESS HNS-3317 3P	KLM-2485/68/96/7/8/9	1
*475X255003	HARNESS HNS-3318 4P	KLM-2485/68/96/7/8/9	1
*475X255004	HARNESS HNS-3321 7P	KLM-2485/68/96/7/8/9	2
*475X255005	HARNESS HNS-3322 7P	KLM-2485/68/96/7/8/9	1
*475X255006	HARNESS HNS-3323 8P	KLM-2485/68/96/7/8/9	1
*475X255007	HARNESS HNS-3326 4P	KLM-2485/68/96/7/8/9	1
*475X255008	HARNESS HNS-2817 7P	KLM-2485/68/96/7/8/9	2
*475X255009	HARNESS HNS-3330 20P	KLM-2485/68/96/7/8/9	1
*475X255010	HARNESS HNS-3324 3P	KLM-2501	1
*475X255011	HARNESS HNS-3328 6P	KLM-2501	1
*475X255012	HARNESS HNS-3325 3P	M.PART	1
*475X255013	HARNESS HNS-3327 4P	M.PART	1
*475X255014	HARNESS HNS-3329 7P	M.PART	1
*500X040000	INTER CONNECTOR YP L58XH6.0XW2	M.PART	2
*500X255000	X-2550 PEDAL CUSHION R3 F41114	M.PART	4
*500X270000	X-2700 SHAFT GLIP KOC-E40558	M.PART	4
*500X270001	X-2700 PEDAL RUBBER KOC-E30310	M.PART	2
*500X270002	X-2700 PEDAL CUSHION F1	M.PART	2
*500X851003	X-8510 RUBBER LEG KOC-F40709	M.PART	8
*500X951G02	X-951G SW CUSHION KOC-F40906	M.PART	2
*575X120000	LED SPACER LEDH-6	KLM-2485/68/96/7/8/9	3
*575X255000	LED SPACER LH5-030	KLM-2455/2500	2
*575X255001	LED SPACER LEDH-11 L=11MM	KLM-2485/68/96/7/8/9	1
*575X270000	LED SPACER KOC-F41043	KLM-2485/68/96/7/8/9	1
*575X270001	LED SPACER LH-5-17 L=17MM	KLM-2485/68/96/7/8/9	8
*620X254001	X-2540 KNOB KOC-E40572	M.PART	6
*620X255000	X-2550 VR KNOB KOC-H40170-2	M.PART	6
*620X255001	X-2550 5 SERIAL BUTTON E20232	M.PART	2
*630X040000	X-0400 REFLECTION SHEET F40971	M.PART	1
*630X040001	X-0400 SHEET KOC-F40972	M.PART	1
*630X255000	X-2550 LED WINDOW KOC-E40573	M.PART	1
*630X255001	X-2550 LCD WINDOW KOC-E40574	M.PART	1
*630X255002	X-2550 REFLECTION SHEET F41037	M.PART	2
*641X255000	X-2550 UPPER CASE KOC-C20404	M.PART	1
*641X255001	X-2550 CONNECTOR HOLDER C41346	M.PART	1
*641X255002	X-2550 PANEL ANGLE (A) C30611	M.PART	1
*641X255003	X-2550 PANEL ANGLE (B) C30612	M.PART	1
*641X255004	X-2550 VALVE CHASSIS C30613	M.PART	1
*641X270001	X-2700 BOTTOM CASE KOC-C20388	M.PART	1
*641X270002	X-2700 SIDE BOARD L C30595-1	M.PART	1

PART CODE	PART NAME	NOTE	Q'TY
*641X270003	X-2700 SIDE BOARD R C30595-2	M.PART	1
*641X270004	X-2700 PEDAL KOC-C20389-1	M.PART	2
*641X270005	X-2700 PEDAL SUPPORT C41281	M.PART	2
*641X270006	X-2700 PEDAL ANGLE KOC-C41282	M.PART	2
*641X270007	X-2700 PEDAL SHAFT KOC-C41289	M.PART	2
*641X270008	X-2700 SW ANGLE KOC-C41279	M.PART	4
*641X270009	X-2700 SUPPORT ANGLE 1 C41280	M.PART	1
*641X270012	X-2700 GLIP PLATE KOC-C41326	M.PART	2
*641X270013	X-2700 SW ACTUATOR FC7108	M.PART	9
*644X254000	X-2540 GND PLATE KOC-C41304	KLM-2455/2500	5
*646X254004	X-2540 VALVE COVER KOC-E30317	M.PART	1
*646X255000	X-2550 LCD FRAME KOC-E20231	M.PART	1
*646X255001	X-2550 LED GUIDE KOC-F41097	M.PART	2